

## TIPULIDAE FROM THE JAPANESE MANDATED SOUTH SEA ISLANDS (DIPTERA)<sup>1</sup>

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TWENTY-TWO FIGURES

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I am very greatly indebted to my long-time friend, Professor Teiso Esaki, for the privilege of studying the crane-flies that he and various colleagues secured on the various groups of the Japanese Mandated islands. The types and uniques of the species herein considered are preserved in the Entomological Laboratory of the Kyushu Imperial University.

Our knowledge of the Tipulidae of the Micronesian Islands has been very insufficient and the materials of the present series add greatly to the subject. As is the case in all of the isolated island groups of the Pacific Ocean, the crane-flies fall in three extensive genera, *Limonia* Meigen, *Trentepohlia* Bigot and *Gonomyia* Meigen, all represented in the islands under consideration by chiefly endemic species. In the vast genus *Limonia*, representatives of no fewer than seven subgenera were taken, these being *Libnotes* Westwood, *Limonia* Meigen, *Dicranomyia* Stephens, *Idioglochina* Alexander, *Alexandriaria* Garrett, *Pseudoglochina* Alexander, and *Thrypticomys* Skuse. The sole subgenus of *Gonomyia* was *Lipophleps* Bergroth, represented by three very distinct species. Two genera, *Orimarga* Osten Sacken and *Conosia* van der Wulp, are very rare to virtually unknown from the lesser Pacific Islands, while the single Tipuline genus, *Ctenacroscelis* Enderlein, represented by a single species, is likewise barely represented on the minor Pacific island groups. For a list of the Tipulidae of Oceania, consult the following paper: Checklist of Tipulidae of Oceania, by C. P. Alexander; Bernice P. Bishop Museum, Occasional Papers, Vol. 9, No. 21 (Pacific Entomological Survey Publication 2): 1—12; 1932.

<sup>1</sup> Results of Professor T. Esaki's Micronesia Expeditions 1936—40, No. 44.

## TIPULINAE

*Ctenacroscelis palauensis*, sp. n.

Figs. 1, 13.

Belongs to the *umbrinus* group; antennal flagellum black; head dark brown, the front and orbits obscure yellow; mesonotal praescutum obscure yellow, patterned with brown, the stripes narrowly bordered by darker; broad brownish black lateral areas behind the pseudosutural foveae; pleura and pleurotergite buffy yellow, restrictedly patterned with dark brown; femora brown, the tips dark brown, preceded by a clearer yellow ring; wings brown, cells *C* and *Sc* darker brown; cord narrowly seamed with dark brown; cell *R*<sub>3</sub> only slightly constricted at midlength; male hypopygium with the ninth tergite with a shallow median notch, the lateral lobes truncated.

*Male*.— Length about 17 mm.; wing, 19 mm.; antenna, about 3 mm.

Frontal prolongation of head reddish brown, darker beneath; nasus conspicuous, elongate, black; palpi black. Antennae with scape and pedicel pale brown above, brighter on ventral surface; flagellum black, the base of the first segment yellow; antennae 12-segmented; flagellar segments simple, the lower face scarcely produced; first flagellar segment elongate, one-half longer than the second; succeeding segments gradually decreasing in length; terminal segment about one-fifth longer than the penultimate. Head dark brown, the front and broad orbits obscure yellow; vertical tubercle low and relatively inconspicuous.

Pronotum brown medially, paler brownish yellow on sides. Mesonotal praescutum obscure yellow, handsomely patterned with brown; four light brown stripes that are narrowly and insensibly bordered by darker; cephalic and humeral margins more darkened; a conspicuous brownish black lateral area behind the pseudosutural foveae, extending caudad to the suture; scutum with the ground color light yellow, especially on cephalic portions, each lobe with two brown areas that are narrowly bordered by darker brown; median area of scutum weakly darkened, including a U-shaped extension back from the suture; scutellum black, the extreme bases a trifle paler; mediotergite buffy gray with a narrow brown central vitta and with the posterior border weakly darkened. Pleura buffy yellow, restrictedly patterned with pale brown, including two spots on the sternopleurite; pleurotergite yellow, the posterior portion of the katatergite dark brown. Halteres dark

brown, the base of stem a trifle paler. Legs with the coxae buffy, the outer face with a darkened spot; trochanters brownish yellow; femora brown, the bases narrowly more yellow, the tips dark brown, preceded by a clearer yellow ring; tibiae brownish black, the extreme bases pale; tarsi brown, the outer segments paling to brownish yellow. Wings (Fig. 1) with a weak brownish tinge, cell *C*, and especially *Sc*, darker brown; stigma brown; narrow but conspicuous brown seams on the anterior and on the posterior cords, interrupted at fork of *M*; centers of outer medial cells and *R*<sub>5</sub> pale; veins brown. Venation: *Rs* longer than *m-cu*, *R*<sub>2+3</sub> only slightly arcuated, cell *R*<sub>3</sub> thus only slightly constricted at midlength, much widened at outer end; *m-cu* at about one-third the length of *M*<sub>3+4</sub>.

Abdominal tergites dark brown, the caudal borders narrowly, the posterior borders more broadly, grayish; sternites yellow; hypopygium dark. Male hypopygium (Fig. 13) with the ninth tergite, *9t*, relatively short, the caudal margin with a shallow quadrate median notch and a broad depressed dorsal furrow back from the notch for more than one-fourth the length of the tergite; lateral lobes broad, truncated. Dististyles, *id*, *od*, as figured; apical beak of inner style small and slender. Eighth sternite with caudal margin entire, unarmed.

*Hab.* Palau Islands.

*Holotype*, ♂, Babeldaob: Ngarmisukan-Emertao, February 12, 1938 (*Esaki*).

*Ctenacrosceles palauensis* is the first species of the genus to be discovered in the Micronesian Islands. It is generally similar to *C. umbrinus* (Wiedemann), of the East Indies, differing conspicuously in the coloration, nature of antennae, and especially in the structure of the male hypopygium. The species is quite distinct from the other forms known from Australasia (Papua, northern Australia, Fiji).

#### LIMONIINAE

##### *Limonia (Libnotes) solomonis* (Alexander)

*Libnotes solomonis* Alexander, Ann. Mag. Nat. Hist., (9) 13: 39–40, 1924.

Caroline Islands, Ponape: Nampir-Kolonia, January 5–17, 1938 (*Esaki*).

##### *Limonia (Libnotes) kusaiensis*, sp. n.

Size large (wing, male, 15 mm. or more); palpi yellow; antennae with terminal segment elongate; eyes (male) broadly contiguous;

mesonotal praescutum with discal area reddish brown, the lateral portions of the areas bordered by darker, the lateral praescutal margins yellow; pleura uniformly yellow; legs yellow, the femoral tips broadly and conspicuously black, the tibial tips scarcely darkened; wings pale yellow, the prearcular and costal fields more saturated yellow; a conspicuous brown pattern includes an entire post arcular fascia and an irregular band at cord; cell *1st M*<sub>2</sub> elongate, subequal to vein *M*<sub>3</sub> beyond it; abdominal tergites yellow, segments two to six, inclusive, with a blackring at near midlength.

*Male*.— Length about 10—14 mm.; wing, 15—19 mm.

Rostrum and palpi uniformly yellow; labial palpi long. Antennae with the scape infuscated above, obscure yellow beneath; succeeding segments brownish yellow, the outer segments paling to obscure yellow; flagellar segments short-oval, the longest verticils only a little longer than the segments; outer segments more elongate, especially the attenuated terminal segment which exceeds twice the length of the penultimate. Head dark brown; eyes broadly contiguous, obliterating the anterior vertex.

Cervical sclerites and pronotum brownish black in type, yellow in paratype. Mesonotal praescutum with the usual stripes reddish brown, confluent, the lateral borders narrowly brownish black, wider along the lateral stripes; lateral borders of sclerite broadly pale yellow; scutum with lobes extensively dark brown, the median region and the scutellum pale yellow; postnotum yellow, the lateral borders of the mediotergite blackened, the lines converging toward the midarea at at posterior border. Pleura uniformly yellow, without markings. Halteres with the elongate stem yellow, knob brownish black. Legs with the coxae and trochanters yellow; femora yellow, the tips broadly and conspicuously black, involving about the distal twelfth of the segment; tibiae uniformly yellow or with the extreme tip insensibly darkened; tarsi yellow, segments three and four darkened, five again brownish yellow; fore legs with vestiture of femora and tibiae very short and spinous, that of remainder of legs longer and more normal; claws with several teeth. Wings with the ground color pale yellow, the prearcular and costal fields more saturated yellow; a conspicuous brown pattern that is restricted to the vicinity of the veins, as follows: Extreme wing base; a broad, complete postarcular band; a narrow irregular band along cord, ending at vein *Cu*; outer end of cell *1st M*<sub>2</sub>; fork of *Sc* and at stigma; veins yellow, darkened in the clouded portions. Venation: Prearcular portion of wing elongate, exceeding

one-half the length of vein  $M$ ;  $Sc$  long,  $Sc_1$  ending a short distance before level of outer end of cell  $1st\ M_2$ ; free tip of  $Sc_2$  ending a short distance beyond level of  $R_2$ ,  $R_{1+2}$  projecting beyond as a long spur;  $m$  and basal section of  $M_3$  in transverse alignment; cell  $1st\ M_2$  elongate, subequal to vein  $M_3$  beyond it;  $m-cu$  at near three-fourths the length of cell; vein  $2nd\ A$  more elongate than in *illecebrosa*.

Abdominal tergites yellow, conspicuously ringed with black at near midlength of segment leaving broad basal and apical rings of the ground color on segments two to six, the lateral borders of the posterior rings restrictedly darkened; outer segments more obscured; sternites yellow; male hypopygium chiefly obscure yellow, the basistyle darkened.

*Hab.* Caroline Islands.

*Holotype*, ♂, Kusaie: Fwinkol, December 9, 1937 (*Esaki*).

*Paratype*, ♂, Ponape: Kolonia, January 17, 1938 (*Esaki*).

*Limonia* (*Libnotes*) *kusaiensis* is closest to *L. (L.) aurantiaca* (Doleschall), *L. (L.) flavipalpis* (Edwards) and *L. (L.) illecebrosa* Alexander, differing from all in the very distinct pattern of the thorax and wings. The venation is distinct from *flavipalpis* in the more elongate cell  $1st\ M_2$  and vein  $2nd\ A$ .

*Limonia* (*Libnotes*) *phaeonota*, sp. n.

Figs. 2, 14.

General coloration of mesonotum brownish black to black, only the narrow lateral margins of the praescutum, median region of scutum, parascutella and pleurotergite paler; antennal flagellum yellow; femora yellow, with a relatively narrow, nearly terminal, dark brown ring; wings whitish subhyaline, heavily patterned with dark brown;  $Sc_1$  long, subequal in length to cell  $1st\ M_2$ ;  $Rs$  long, angulated at origin;  $R_{2+3}$  angulated to rectangular at origin; abdominal tergites pale, each with a very conspicuous black triangle, the point directed cephalad, leaving broad lateral triangles of the ground; sternites pale; male hypopygium with the ventral dististyle large, the rostral spines unequal, the outer one largest, from a low blackened base; mesal-apical lobe of gonapophyses slender, gently curved, the mesal edge spinulose.

*Male*.— Length about 6.5 mm.; wing, 7.5 mm.

*Female*.— Length about 6.5–7.5 mm.; wing, 6–7 mm.

Rostrum and palpi black. Antennae with scape and pedicel black, flagellum abruptly light yellow, only the outer segments a trifle dar-

kened; flagellar segments passing through oval to long-oval. Head dark gray; eyes of male contiguous or virtually so.

Pronotum black. Mesotum uniformly dark brownish black to black, only the median area of scutum, with adjoining portions of the suture, the extreme lateral margins of the praescutum, the parascutella and the pleurotergite pale. Pleura abruptly pale yellow, contrasting with the dark notum. Halteres short, stem yellow, knob brownish black. Legs with the coxae and trochanters pale yellow; femora yellow, with a relatively narrow, nearly terminal, dark brown ring, the extreme tip pale; tibiae and tarsi pale brown, the tips of the former darker. Wings (Fig. 2) whitish subhyaline, heavily patterned with dark brown, including areas at arculus, origin of  $R_s$ ,  $Sc_2$ , stigma, and as broad seams along cord and outer end of cell  $1st\ M_2$ ; wing tip very narrowly darkened; small brown marginal clouds at ends of all longitudinal veins basad and caudad of the wing tip; prearcular and costal fields more yellow; veins pale brown, darker in the patterned areas, yellow in the flavous costal portions. Venation:  $Sc_1$  ending about opposite  $r-m$ ,  $Sc_2$  far from its tip,  $Sc_1$  alone subequal in length to cell  $1st\ M_2$ ;  $R_s$  long, angulated to nearly rectangular at origin; free tip of  $Sc_2$  and  $R_2$  in transverse alignment;  $R_{2+3}$  ranging from angulated to nearly rectangular at origin; cell  $1st\ M_2$  rectangular;  $m-cu$  shortly beyond fork of  $M$ ; Anal veins very gently divergent at base.

Abdominal tergites pale, each with a very conspicuous black triangle, the point directed cephalad, leaving the broad lateral margins and narrow basal rings pale; sternites pale; hypopygium pale yellow; eighth segment uniformly pale; male hypopygium with the tergite and basistyle dark, the ventral dististyle chiefly pale. Male hypopygium (Fig. 14) with the ninth tergite,  $9t$ , deeply notched. Ventral dististyle,  $vd$ , very large, the rostral prolongation correspondingly small, narrowed outwardly; rostral spines very unequal, the outer a strong straight spine from a low blackened base; second spine lying more basad, reduced to a strong seta. Gonapophyses,  $g$ , with mesal apical lobe slender, gently curved, the mesal edge spinulose.

*Hab.* Caroline Islands.

*Holotype*, ♂, Kusaie: Lelo, December 11, 1937 (*Esaki*).

*Allotopotype*, ♀, with the type. *Paratype*, ♀, Malem, December 20, 1937 (*Esaki*).

*Limonia* (*Libnotes*) *phaeonota* is allied to *L. (L.) nigriceps* (van der Wulp) and *L. (L.) bellula* Alexander, being readily told by the unusual

pattern of the mesothrax, heavy wing pattern, and the details of structure of the male hypopygium.

*Limonia (Libnotes) nesopicta*, n. n.

*Libnotes picta* Alexander, Canad. Ent., 47., 80—82, fig.; 1915; name preoccupied.

Described from the island of Guam. Two males and one female from Rota, Marianna Islands, Sonson-Sabana, November 7, 1937 (*Esaki*).

*Limonia (Libnotes) delicatior*, sp. n.

Figs. 3, 15.

General coloration pale orange yellow, without markings on thorax or abdomen; head brownish black; halteres yellow, the knobs weakly darkened; legs yellow; wings subhyaline, with a very restricted, pale brown pattern; *Rs* long, in direct longitudinal alignment with  $R_{4+5}$ ; cell *1st M*<sub>2</sub> elongate; male hypopygium with rostral spines unequal.

*Male*.—Length about 5 mm.; wing, 5.2 mm.

Rostrum yellow, relatively long and slender, with the labial palpi exceeding the remainder of head in length; maxillary palpi pale brown. Antennae obscure yellow to brownish yellow; flagellar segments oval; verticils subequal in length to the segments. Head brownish black; eyes very large, contiguous on midline.

Thorax uniformly pale orange yellow, unmarked. Halteres pale yellow, the knobs weakly darkened. Legs pale yellow throughout; claws with a single long outer spur and smaller, more basal tubercles. Wings (Fig. 3) subhyaline, very weakly patterned with pale brown, including spots at arculus, origin of *Rs*, cord, outer end of cell *1st M*<sub>2</sub> and stigma; prearcular and costal fields pale yellow; veins pale, a little darker in the clouded areas. Venation:  $Sc_1$  ending about opposite *r-m*; *Rs* long, in direct longitudinal alignment with  $R_{4+5}$ ;  $R_{2+3}$  angulated to nearly rectangular at origin; free tip of  $Sc_2$  and  $R_2$  in transverse alignment; cell *1st M*<sub>2</sub> elongate, subequal to vein  $M_{1+2}$  beyond it; *m-cu* about one-half its length beyond fork of *M*; Anal veins gently divergent.

Abdomen, including hypopygium, obscure orange yellow, unmarked. Male hypopygium (Fig. 15) with the lobes of tergite, *9t*, bordered by strong setae. Basistyle, *b*, including its ventro-mesal lobe, small. Ventral dististyle, *vd*, of moderate size, its area exceeding twice that of the basistyle; rostral prolongation with spines unequal, as in the group.

Gonapophyses, *g*, with the concave margin of the mesal-apical lobe bearing eight or nine coarse teeth.

*Hab.* Caroline Islands.

*Holotype*, ♂, Ponape: Kolonia-Nat, November 19, 1937 (*Esaki*).

*Limonia* (*Libnotes*) *delicatior* is one of the smallest and most delicate species of the subgenus so far made known. It is allied to *L.* (*L.*) *nesopicta* Alexander and *L.* (*L.*) *phaeonota*, sp. n., but is entirely distinct in the coloration of the body and wings, and in the details of structure of the male hypopygium.

*Limonia* (*Libnotes*) *jocularis*, sp. n.

Figs. 4, 16.

General coloration of mesonotum buffy brown, the praescutum with three conspicuous brownish black stripes, the median one more or less divided by a pale median vitta; antennae entirely black; flagellar segments oval with short glabrous apical pedicels; pleura yellow, striped longitudinally with dark brown; halteres yellow; fore and middle coxae darkened, posterior pair pale; femora yellow, with a dark brown subterminal ring; wings brownish yellow, sparsely patterned with brown; stigma darker brown, larger in male; *Sc* relatively short; *Rs* long, strongly arcuated; cell 1st *M*<sub>2</sub> long, its inner end arcuated, with *m-cu* at near one-third to one-half the length of the cell; abdominal segments dimidiate, dark brown, their apices obscure yellow; male hypopygium with the ventromesal lobe of basistyle long and conspicuous, with a smaller lobule at base; a single dististyle, this terminating in an acute spinous point; gonapophyses with mesal-apical lobes obtuse.

*Male*.— Length about 6.5 mm.; wing, 7 mm.

*Female*.— Length about 7 mm.; wing, 6.5 mm.

Rostrum and palpi black. Antennae black throughout; flagellar segments oval, with short but abrupt apical pedicels; terminal segment about one-half longer than the penultimate, narrowed distally, longest verticils of segments about equal in length to the segments themselves. In female, apical pedicels of flagellar segments shorter and stouter. Head dark gray, the anterior vertex with a blackened triangle; eyes of male broadly contiguous.

Pronotum brownish black, more buffy laterally. Mesonotal praescutum brown to buffy brown, with three conspicuous brownish black



stripes, the median one insensibly divided by a capillary median vitta; posterior sclerites of notum buffy brown, the scutal lobes brownish black. Pleura obscure yellow, variegated with dark brown, especially on propleura, ventral sternopleurite, ventral anepisternum, and, in cases, on pteropleurite and pleurotergite to form a dorsal longitudinal stripe, leaving the dorsal sternopleurite of the yellow ground; dorso-pleural membrane brown. Halteres yellow. Legs with the coxae more or less darkened, especially the fore and middle pairs, posterior coxae pale; trochanters yellow; femora obscure yellow, with a relatively narrow, dark brown, subterminal ring, this a little more extensive than the yellow apex; tibiae and tarsi yellow, the outer tarsal segments darkened. Wings (Fig. 4) with a brownish yellow tinge, the prearcular and costal fields clearer yellow; a restricted brown pattern, as follows: At arculus; origin of *Rs*; along cord and outer end of cell *1st M*<sub>2</sub>; more weakly darkened in the axillary region; stigma darker brown, long-oval in male, short-oval in female; veins brown, more yellow in the flavous basal and costal portions. Venation: *Sc* relatively short, *Sc*<sub>1</sub> ending before fork of *Rs*, *Sc*<sub>2</sub> at its tip; *Rs* long and strongly arcuated on basal portion, in longitudinal alignment with its anterior branch; cell *1st M*<sub>2</sub> long, its inner end arcuated; *m-cu* varying from opposite one-third to near midlength of cell *1st M*<sub>2</sub>; Anal veins generally parallel at origin.

Abdominal tergites dark brown, the posterior borders broadly obscure yellow, this including more than one-third the total length of segment in male; in female even more extensive, on outer segments involving virtually one-half the segment; basal sternites obscure yellow, beyond the second patterned as on the tergites. Male hypopygium (Fig. 16) with the tergite, *9t*, gently emarginate, the lobes low. Basistyle, *b*, with the mesal-apical lobe very conspicuous, produced mesad and caudad into a cylindrical dusky lobule, at apex with about six parallel ridges or corrugations; at base of style further produced into a smaller pale lobe. Dististyle, *d*, single, gradually narrowed to an acute spinous point; before apex on outer margin raised into a low flange. Gonapophyses, *g*, with mesal-apical lobe conspicuous, the tip obtuse. Aedeagus, *a*, terminating in two divergent flaps, their tips truncated.

*Hab.* Caroline Islands.

*Holotype*, ♂, Ponape: Kolonia, January 17, 1938 (*Esaki*).

*Allotype*, ♀, Kusaie: Lelo, December 3, 1937 (*Esaki*). *Paratype*, a

broken ♂, with the allotype, December 11, 1937.

The present fly is most similar to species such as *Limonia* (*Libnotes*) *perkinsi* (Grimshaw) and *L. (L) hollandi* Alexander, differing very conspicuously in the wing venation and in the structure of the male hypopygium.

*Limonia (Limonia) elephantina*, sp. n.

Figs. 5, 17.

Size small (wing, male, 4.2 mm.); general coloration of mesonotum medium brown; pleura testaceous yellow; halteres and legs dark brown or brownish black; wings pale brown, the prearcular and costal fields more yellowish white; stigma small, oval, brown;  $Sc_2$  far from tip of  $Sc_1$ ;  $m-cu$  close to fork of  $M$ ; male hypopygium with the dististyle single, prolonged into a trunk-like rostrum; gonapophyses with mesal-apical lobe darkened, simple.

*Male*.— Length about 3.5 mm.; wing, 4.2 mm.

Rostrum light brown; palpi black. Antennae with scape and pedicel dark brown, flagellum black; flagellar segments subcylindrical, with very short apical pedicels; terminal segment narrowed on apical fourth, exceeding the penultimate in length; longest verticils subequal in length to the segments. Head dark gray, the very narrow anterior vertex more brightened.

Pronotum dark brown. Mesonotal praescutum uniformly medium brown, paler laterally; scutal lobes a little darker; posterior sclerites of notum brown. Pleura testaceous yellow. Halteres dark brown, the base of stem obscure yellow. Legs with coxae and trochanters testaceous yellow; remainder of legs brownish black, the femoral bases restrictedly pale; claws without teeth (male) but with a powerful seta at base. Wings (Fig. 5) pale brown, the prearcular and costal fields more yellowish white; stigma small, oval, brown; veins brown. Basal petiole of wings conspicuous. Venation:  $Sc$  of moderate length,  $Sc_1$  ending shortly beyond one-third the length of  $Rs$ ,  $Sc_2$  far from its tip, lying just beyond origin of  $Rs$ ;  $Rs$  longer than  $R_{2+3}$ ; free tip of  $Sc_2$  and  $R_2$  in transverse alignment, at midlength of stigma; cell 1st  $M_2$  subequal in length to vein  $M_3$  beyond it;  $m-cu$  close to fork of  $M$ .

Abdominal tergites dark brown, paler laterally; sternites obscure yellow; hypopygium brown. Male hypopygium (Fig. 17) with the lateral lobes of tergite,  $9t$ , appearing as glabrous oval blades; the unique type

is in poor condition and the tergite is badly bent so it is impossible to tell the exact width or depth of the notch between the lateral lobes; it seems probable that the condition is approximately as figured. Basistyle with the ventro-mesal lobe broad, simple. A single dististyle, *d*, its body oval, with long erect setae that are subequal in length to the transverse diameter of the style; apex of style gradually produced into a long slender rostrum, with a single tiny seta on outer face at base and with additional setae along ventral margin and at apex. Gonapophyses, *g*, darkened, the mesal-apical lobe a simple stout curved hook, the acute apex directed laterad. Aedeagus, *a*, terminating in two divergent lobes.

*Hab.* Caroline Islands.

*Holotype*, ♂, Ponape: Nipit-Ninoani, January 13, 1938 (*Esaki*).

*Limonia* (*Limonia*) *elephantina* is allied to *L.* (*L.*) *machidai* (Alexander) of temperate Eurasia, differing in the small size, wing conformation and venation, and especially in the structure of the male hypopygium. The dististyle is much the same in both species but the tergite and gonapophysis are entirely different. The present fly is one of the smallest known species of the subgenus.

*Limonia* (*Dicranomyia*) *neomisera*, sp. n.

Figs. 6, 18.

Allied to *misera*; general coloration gray, the praescutum with three brown stripes, the median one broadest and most distinct; antennae with flagellar segments short and crowded; wings subhyaline or weakly darkened, without stigma; *Sc*<sub>1</sub> very long, cell *M*<sub>2</sub> open by atrophy of *m*; male hypopygium with the ventral dististyle very large and fleshy, its rostral prolongation cultriform, with a single well-developed black spine; margin of mesal-apical lobe of gonapophysis with teeth or crenulations.

*Male*.— Length about 4–4.2 mm.; wing, 4.5 mm.; antenna, about 0.8–0.9 mm.

*Female*.— Length about 4.5–4.7 mm.; wing, 4.6–4.7 mm.

Rostrum relatively long, semipendant, dark brown; palpi brown. Antennae short; scape and pedicel pale brown, basal flagellar segments obscure yellow to brownish yellow, the outer segments darker, with a more or less distinct greenish tinge; flagellar segments short-oval, the more basal ones even shorter and more crowded; setae of basal seg-

ments elongate, unilaterally arranged, on the intermediate and outer segments shorter and more verticillate. Head gray, more buffy in front; anterior vertex relatively wide.

Mesonotal praescutum gray with three brown stripes, the median one broad and distinct, the laterals with a gray pruinosity and more or less obscured; scutal lobes variegated with brown; scutellum grayish brown, narrowly paler medially; postnotum dark gray. Some specimens are definitely paler, more buffy, with the stripes and markings less intense. Pleura buffy gray to gray, with a narrow but conspicuous black longitudinal stripe extending from above the fore coxae to the base of abdomen, passing beneath the halteres; ventral sternopleurite less evidently darkened. Halteres yellow. Legs with the coxae obscure yellow to brownish yellow; trochanters yellow, femora obscure yellow, the tips narrowly darkened, especially evident on the fore pair; tibiae and tarsi obscure yellow, the terminal tarsal segments darkened. Wings (Fig. 6) subhyaline or with a weak dusky tinge; stigma not or scarcely darkened; veins brown. Venation:  $Sc$  short,  $Sc_1$  ending just before origin of  $Rs$ ,  $Sc_2$  far from its tip, at near three-fifths the length of  $Sc$ ;  $Rs$  moderately long, nearly twice the basal section of  $R_{4+5}$ ; cell  $M_2$  open by the atrophy of  $m$ ;  $m-cu$  oblique, close to the fork of  $M$ , in cases just before to just beyond the fork.

Abdominal tergites dark brown, the caudal borders vaguely paler; basal sternites somewhat paler; male hypopygium large, slightly brighter brown. Ovipositor with long straight cerci. Male hypopygium (Fig. 18) with the tergite,  $9t$ , transverse, the caudal border nearly straight. Basistyle,  $b$ , small, its ventromesal lobe correspondingly reduced. Ventral dististyle,  $vd$ , very large and fleshy, its area several times that of the basistyle; rostral prolongation cultriform, with a single strong black spine, not arising from a basal tubercle; laterad of this spine near base of rostrum with a small setigerous puncture. Gonapophyses,  $g$ , with mesal-apical lobe elongate, the margin toothed, the face bearing a low flange. Aedeagus conspicuous, broad, at apex produced into two lobes, each of which is extended into a pale acute spinous point.

*Hab.* Caroline and Marianna Islands.

*Holotype*, ♂, Rota, Marianna Islands, Sonson-Sabana, November 4, 1937 (*Esaki*). *Allotype*, ♀, Rota: Tetêto-Tatâcho-Sonson, November 5, 1937 (*Esaki*). *Paratypes*, 1 ♀, Rota: Sonson, February 4, 1936 (*Esaki*); 1 ♂, Kusaie, Caroline Islands, Malem, December 15, 1937 (*Esaki*); 1 ♀,

Kusaie: Lelo, on board, at light, November 21, 1937 (*Esaki*).

The most similar species is the Papuan *Limonia* (*Dicranomyia*) *misera* (Riedel), which differs in the coloration, and in the structure of the male hypopygium.

*Limonia* (*Dicranomyia*) *illingworthi* (Alexander)

*Dicranomyia illingworthi* Alexander, Ann. Ent. Soc. America, 7: 239—240; 1914.

Caroline Islands:— Ponape: Kolonia, January 17, 1938 (*Esaki*).

Marshall Islands:—Wotje-Atoll: Wotje, November 24, 1937 (*Esaki*).

The distinctions between this species and the very similar *Limonia* (*Dicranomyia*) *sordida* (Brunetti) have been given elsewhere (Alexander, Encycl. Ent., Diptera, 4: 89—90, fig.; 1929). The present material agrees in all respects with *illingworthi* which is widely distributed in the Pacific Islands (Fiji, New Caledonia, north Queensland). It may be noted that *sordida*, while being common and widely distributed in Asia, occurs as far east as Papua and further occurs in Guam, Marianna Islands.

*Limonia* (*Dicranomyia*) *fullowayi* (Alexander)

*Dicranomyia fullowayi* Alexander, Canad. Ent., 47: 79—80, fig.; 1915.

Described from the island of Guam, Marianna (Ladrone) Islands. Caroline Islands:— Truk: Fefan-Mesa-Urunna, November 15, 1937 (*Esaki*).

Marianna Islands:— Rota: Sonson-Sabana, November 7, 1937 (*Esaki*); Tatâcho-Sonson, February 8, 1936 (*Esaki*).

Palau Islands:— Korrör: Arumizu, January 31, 1938 (*Shiro Murakami*).

There has been an unfortunate confusion of names in species allied to *fullowayi*. The species recorded under this name from Japan and China (Alexander, Philippine Journ. Sci., 63: 373; 1937; Notes d'Ent. Chinoise, 4 (5): 70; 1937) is now known to be quite distinct from the present fly and has been re-named *Limonia* (*Dicranomyia*) *poli* Alexander in another paper.

The male hypopygium of *fullowayi* (Fig. 19) is distinctive. The caudal margin of the tergite, *9t*, is only gently emarginate. Ventral dististyle, *vd*, very long and conspicuous, its area approximately equal to four times the basistyle; rostral prolongation slender, with two short, separated spines, usually placed on side of prolongation near

base. Gonapophyses, *g*, with mesal-apical lobe relatively short, simple.

*Limonia (Idioglochina) tusitala* (Alexander), var.

*Rhipidia tusitala* Alexander, Bull. Brooklyn Ent. Soc., 16: 10—11; 1921.

Caroline Islands:—Ponape: Ronkiti-Paliker, January 15, 1938 (*Esaki*); Kolonia-Jokaji, November 18, 1937 (*Esaki*). Kusaie: Lelo, November 21, 1937 (*Esaki*); Malem, December 18, 1937 (*Esaki*). Indicated by the collector as being a marine species.

I am considering the present series of specimens as falling within the specific limits of *tusitala*, which is the oldest name in this particular group of forms. There is a considerable range in degree of pectination of the flagellar segments in the male, correlated with a marked uniformity in the venation and in the structure of the male hypopygium. The smaller, darker specimens in the series had been identified by Tokunaga as *kotoshoensis* (Alexander) but scarcely seem to be conspecific. The type of *kotoshoensis* shows *Rs* as very short, less than the basal section of  $R_{4+5}$  and with the anterior branch of *Rs* straight and not upcurved, as in the *tusitala* complex; this results in a narrowing of cell  $R_1$  and a shortening of vein  $R_2$ . The antennae show almost the minimum of pectination within the subgenus. The Ponape forms have the antennal pectinations more conspicuous and the anterior branch of *Rs* strongly upcurved. Two larger specimens from Lelo are much paler in color and have the flagellar segments of the male less produced. Members of the group occur on many of the Pacific islands and the exact interrelationships existing between the various species or races still cannot be definitely indicated.

*Limonia (Alexandriaria) cinereicapella* Alexander

*Limonia (Alexandriaria) cinereicapella* Alexander, Philippine Journ. Sci., 54: 452—453; 1934.

Described from New Guinea.

Palau Islands:—Babeldaob: Marukyoku, February 23, 1936 (*Esaki*).

Caroline Islands:—Kusaie: Lelo, December 4, 1937 (*Esaki*).

The venation is shown in Fig. 7.

*Limonia (Pseudoglochina) ponapensis*, sp. n.

Fig. 8.

General coloration of thorax brownish black; antennae black

throughout; thoracic pleura with a broad, orange-yellow, longitudinal stripe, the ventral pleurites black; all tibiae white, with two broad black rings that are subequal in extent to the interspaces; wings with a weak dusky tinge, cells *C* and *Sc* a trifle darker; stigma oval, darker brown; *m-cu* a short distance beyond fork of *M*.

*Sex?* Wing, 6 mm.

Rostrum and palpi dark brown. Antennae black throughout; flagellar segments fusiform, with apical pedicels especially developed; verticils longer than the segments. Head yellow, the vertex with a transverse brown area.

Pronotum dark brown, paler laterally. Mesonotum uniformly brownish black, the color including the dorsal portions of the pteropleurite and pleurotergite. Pleura with the ventral portions black, leaving a broad orange-yellow longitudinal stripe extending from the sides of the pronotum to the base of abdomen, passing beneath the halteres and including the posterior coxae. Halteres black, the stem a little more dusky. Legs with the fore and middle coxae blackened; trochanters testaceous yellow: fore femora blackened, the base narrowly pale; remaining femora obscure yellow, the tips rather narrowly blackened; tibiae white, each with two relatively wide black rings, the more basal a little narrower and subequal in extent to the pale interspace; outer black ring subequal in extent to the white apex; tarsi white. Wings (Fig. 8) with a weak dusky tinge, cells *C* and *Sc* a little darker; stigma oval, darker brown; veins black. Venation: *Sc*<sub>1</sub> ending shortly before fork of the short oblique *Rs*, *Sc*<sub>2</sub> opposite origin of *Rs*; cell *2nd M*<sub>2</sub> deep, approximately three times its petiole; *m-cu* a short distance beyond fork of *M*; vein *2nd A* moderately extended.

Abdomen broken.

*Hab.* Caroline Islands.

*Holotype*, *Sex?*, Ponape: Kolonia, January 1, 1938 (*Esaki*).

*Limonia* (*Pseudoglochina*) *ponapensis* is quite distinct from allied regional forms in the pattern of the wings, legs and body. It is apparently closest to *L. (P.) hoskingi* Alexander, of New Britain.

*Limonia* (*Thrypticomys*) *arachnophila* (Alexander)

*Dicranomyia* (*Thrypticomys*) *arachnophila* Alexander, Philippine Journ. Sci., 33: 301–302.

Palau Island:—Korror: Arabaketsu, February 1, 1938 (*Esaki*).

Agrees very closely with typical material from the Philippines.

*Limonia (Thrypticomyia) microstigma carolinensis*, subsp. n.

As in the typical form, differing especially in the details of structure of the male hypopygium.

*Male*.— Length about 5—5.5 mm.; wing, 5—5.5 mm.

*Female*.— Length about 4.5—5 mm.; wing, 5—5.5 mm.

Darkened proximal ends of basitarsi extensive, involving approximately one-half the segment on all legs. Wings with the stigma exceedingly small, as in the typical form. Venation: *Sc* long, *Sc*<sub>1</sub> ending opposite or immediately before origin of *Rs*; *m-cu* close to midlength of cell 1st *M*<sub>2</sub>. Male hypopygium with the ninth tergite deeply emarginate, the lobes relatively narrow, each with three major marginal setae. Basistyle with the ventro-mesal lobe of moderate size as in the species, not greatly prolonged as in *unisetosa* Alexander, bearing a greatly elongated apical seta, as in the species. Rostral prolongation slender, the spines separated by a space about equal to their own width, arising from a common tubercle.

*Hab.* Caroline Islands.

*Holotype*, ♂, Kusaie: Lelo, December, 4, 1937 (*Esaki*).

*Allotopotype*, ♀, with the type. *Paratopotypes*, 1 ♂, 1 ♀, with the type. "Lives on spider webs".

The habit of resting and dancing on a spider web, as mentioned by Professor Esaki for this fly, is found in various species of the subgenera *Thrypticomyia* Skuse and *Euglochina* Alexander, all with whitened tarsi (See Alexander, Philippine Journ. Sci., 33: 298—301; 1927, for an account of this occurrence).

*Orimarga (Orimarga) palauiana*, sp. n.

Fig. 9.

Size small (wing, female, less than 5 mm).; general coloration of mesonotum dark brown, the surface polished; antennae black, the flagellar segments oval; pleura yellow, with a large brown area on mesepisternum; legs brown; wings narrow, with a faint gray tinge, the prearcular and costal regions more yellowish; *R*<sub>1+2</sub> jutting beyond level of *R*<sub>2</sub> as a short spur; *m-cu* about opposite one-third the length of *Rs*; abdomen obscure yellow.

*Female*.— Length about 5.5 mm.; wing, 4.5 mm.

Rostrum and palpi black. Antennae black throughout; flagellar



segments oval; verticils a little shorter than the segments. Head brownish black.

Mesonotal praescutum relatively dark brown, the surface polished, humeral region obscure yellow; remaining sclerites of notum dark brown, sparsely pruinose. Pleura yellow, with a large brown area involving the ventral anepisternum and dorsal sternopleurite; pleurotergite weakly darkened. Halteres with stem pale, knob weakly darkened. Legs with the coxae and trochanters yellow; femora obscure yellow to brownish yellow; remainder of legs brown. Wings (Fig. 9) narrow, with a faint grayish tinge, prearcular and costal regions more yellowish; veins brown. Numerous macrotrichia on veins beyond cord. Venation:  $Sc_1$  ending about opposite three-fourths the length of  $R_s$ , the latter angulated at origin; free tip of  $Sc_2$  a short distance before level of  $R_2$ ,  $R_{1+2}$  projecting as a very short spur;  $m-cu$  about opposite one-third the length of  $R_s$ ;  $M_{3+4}$  longer than  $M_4$ .

Abdomen obscure yellow. Ovipositor with the cerci small.

*Hab.* Palau Islands.

*Holotype*, ♀, Korrör: Arabaketsu, February 1, 1938 (*Esaki*).

*Orimarga* (*Orimarga*) *palauiana* is quite distinct from all of the species known from the Philippines and Formosa. It somewhat resembles the larger *O. (O.) quadrilobata* Alexander but is quite distinct in the venation, especially of the radial field.

### *Conosia irrorata insularis* Alexander

*Conosia irrorata insularis* Alexander, Proc. Hawaiian Ent. Soc. (in press).

Palau Islands:—Babeldaob: Marukyoku, February 23, 1936 (*Esaki*).

Caroline Islands:—Ponape: Nipit-Ninoani, January 13, 1938 (*Esaki*). Kolonia—Nat, November 19, 1937 (*Esaki*).

### *Trentepohlia* (*Mongoma*) *poliocephala* (Alexander)

*Trentepohlia* (*Mongoma*) *poliocephala* Alexander, Philippine Journ. Sci., 40: 266—267; 1929.

Caroline Islands:—Ponape: Kolonia, January 17, 1938 (*Esaki*).

### *Trentepohlia* (*Mongoma*) *guamensis* (Alexander)

*Mongoma guamensis* Alexander, Canad. Ent., 47: 83, fig.; 1915.

Described from Guam, Marianna Islands. In the present series there are rather numerous specimens, as follows:

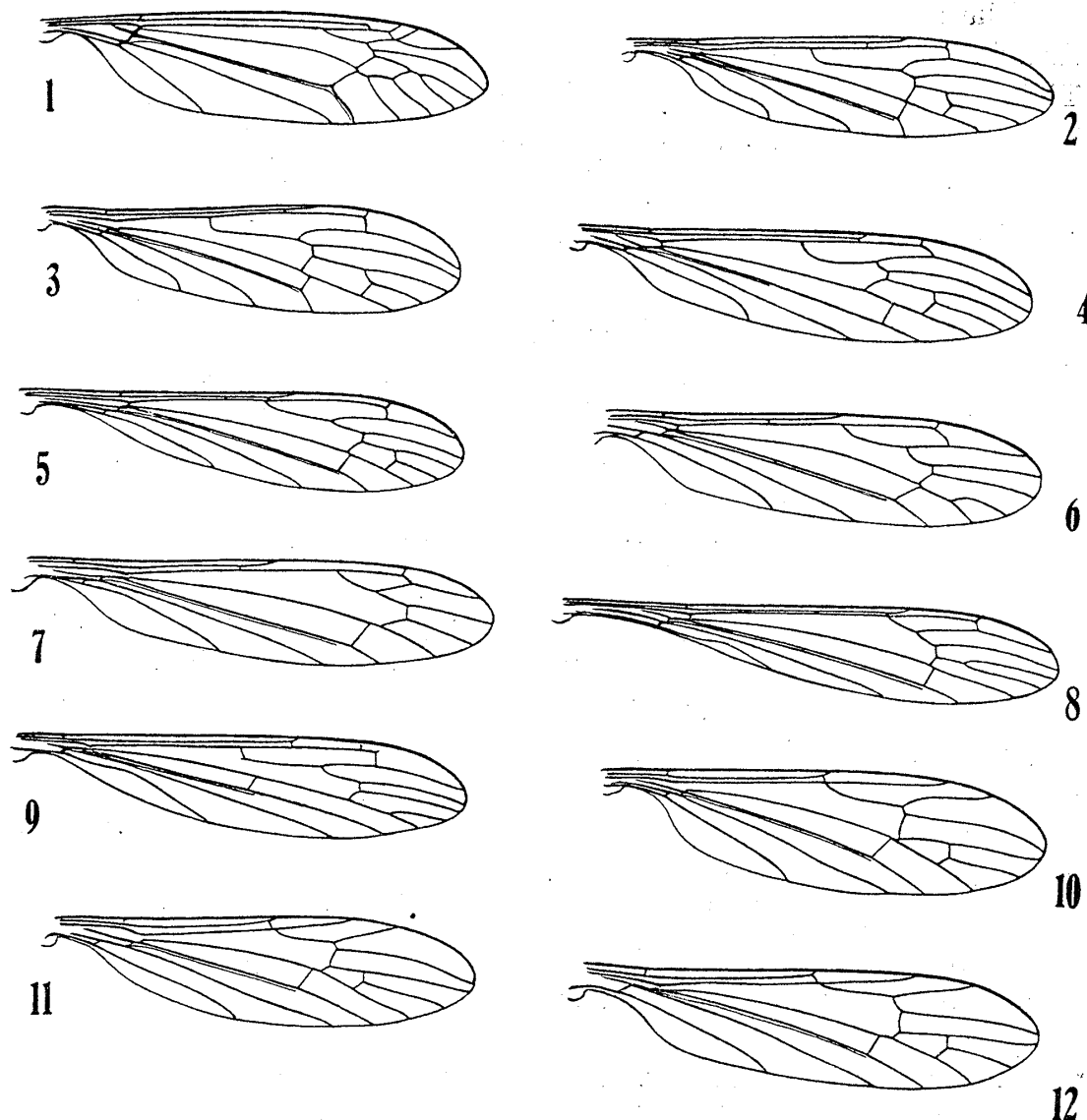


Fig. 1. *Ctenacroscelis palauensis*, sp. n.; venation.  
 2. *Limonia* (*Libnotes*) *phaeonota*, sp. n.; venation.  
 3. *Limonia* (*Libnotes*) *delicatiior*, sp. n.; venation.  
 4. *Limonia* (*Libnotes*) *jocularis*, sp. n.; venation.  
 5. *Limonia* (*Limonia*) *elephantina*, sp. n.; venation.  
 6. *Limonia* (*Dicranomyia*) *neomisera*, sp. n.; venation.  
 7. *Limonia* (*Alexandriaria*) *cinereicapella* Alex.; venation.  
 8. *Limonia* (*Pseudoglochina*) *ponapensis*, sp. n.; venation.  
 9. *Orimarga palauiana*, sp. n.; venation.  
 10. *Gonomyia* (*Lipophleps*) *esakiella*, sp. n.; venation.  
 11. *Gonomyia* (*Lipophleps*) *intrepida*, sp. n.; venation.  
 12. *Gonomyia* (*Lipophleps*) *pietatis*, sp. n.; venation.

Palau Islands:—Koror: Arabaketsu, February 2, 1938 (*Esaki*).

Marianna Islands:—Rota: Sonson-Sabana, November 7, 1937 (*Esaki*).

Tinian: Sonson, November 2, 1937 (*Esaki*). Saipan: Garapan, February 8, 1936 (*Esaki*); thousands of specimens swarming on the trunk of a coconut palm.

Caroline Islands:—Kusaie: Tafwonsak-Mwot, December 7, 1937; Lelo (Ualan), December 12, 1937 (*Esaki*). Ponape: Kolonia, January 17, 1938 (*Esaki*).

As might be expected in a large series of specimens, there is considerable variation in size, depth of body coloration, and details of venation. However, I must refer all these specimens to this single species. The paling of the tarsi to yellow in some cases involves the extreme tip of the tibia.

*Gonomyia (Lipophleps) esakiella*, sp. n.

Figs. 10, 20.

General coloration of mesonotum dark gray; thoracic pleura with a very distinct and clearly delimited silvery white stripe, bordered by brown above and by black beneath; halteres black; femora chiefly black, the bases paler, with a narrow yellow ring at near three-fourths the length; tibiae conspicuously blackened at tips; wings subhyaline, unpatterned; male hypopygium with the outer dististyle a black blade bearing an acute spine just beyond the basal fourth; inner dististyle terminating in a short black spine; phallosome consisting essentially of two decussate yellow rods that terminate in acute black spines.

*Male*.—Length about 4 mm.; wing, 4.5 mm.

*Female*.—Length about 5 mm.; wing, 4.5 mm.

Rostrum and palpi black. Antennae with scape and pedicel china-white beneath, darkened on dorsal surface; flagellum passing through light brown to black; verticils elongate, especially in male. Head

Fig. 13. *Ctenacroscelis palauensis*, sp. n.; male hypopygium.

14. *Limonia (Libnotes) phaeonota*, sp. n.; male hypopygium.

15. *Limonia (Libnotes) delicatior*, sp. n.; male hypopygium.

16. *Limonia (Libnotes) jocularis*, sp. n.; male hypopygium.

17. *Limonia (Limonia) elephantina*, sp. n.; male hypopygium.

18. *Limonia (Dicranomyia) neomisera*, sp. n.; male hypopygium.

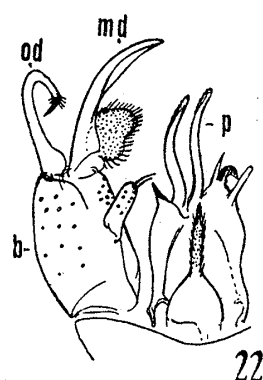
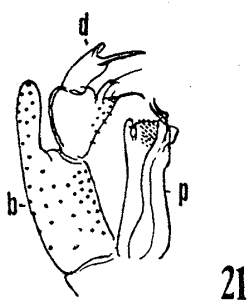
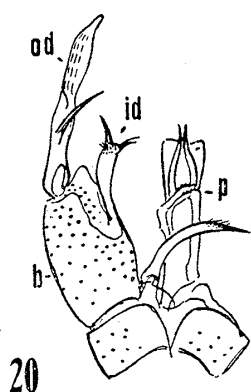
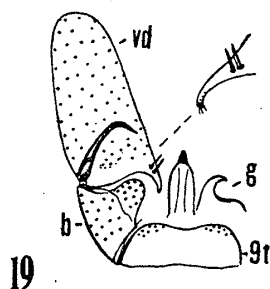
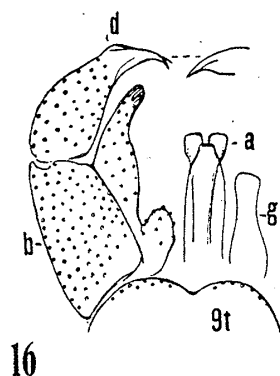
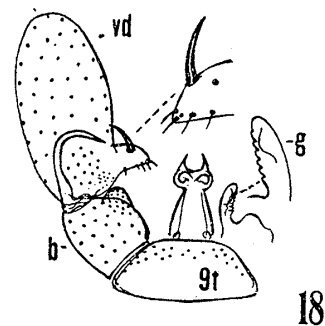
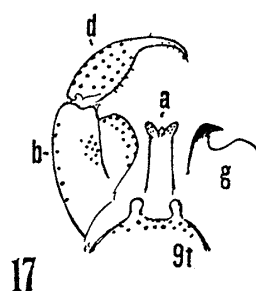
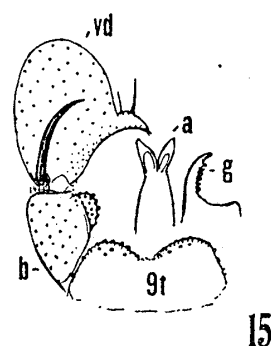
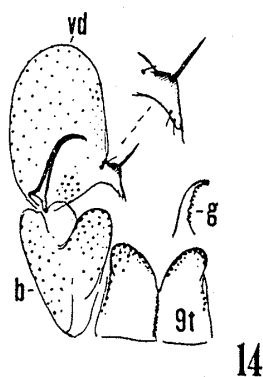
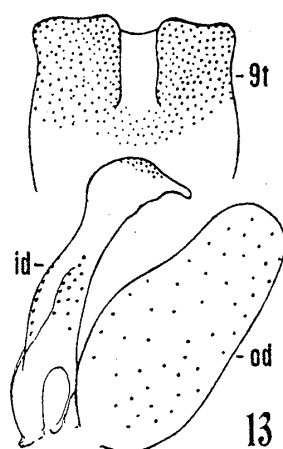
19. *Limonia (Dicranomyia) fullowayi* (Alexander); male hypopygium.

20. *Gonomyia (Lipophleps) esakiella*, sp. n.; male hypopygium.

21. *Gonomyia (Lipophleps) intrepida*, sp. n.; male hypopygium.

22. *Gonomyia (Lipophleps) pietatis*, sp. n.; male hypopygium.

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(Symbols: *a*, aedeagus; *b*, basistyle; *d*, dististyle; *g*, gonapophysis; *id*, inner dististyle; *md*, intermediate dististyle; *od*, outer dististyle; *p*, phallosome; *9t*, 9th tergite; *vd*, ventral dististyle.)

china-white, the vertex chiefly brownish gray.

Pretergites china-white, the color continued to the wing-root. Mesonotum uniformly dark gray, the praescutum with two scarcely indicated darker brown stripes; posterior border of scutellum more brownish yellow to obscure yellow, pruinose; mediotergite and median region of scutum with a light gray bloom. Pleura brownish black, with a very distinct and clearly delimited silvery white stripe extending from and including the fore coxae, passing beneath the halteres to the base of the abdomen; dorsal pleurites brown, paler in color than the ventral darkening. Halteres uniformly blackened. Legs with the fore coxae whitened, except the reddish brown base; middle and hind coxae with basal half or less black, the remainder obscure yellow; trochanters obscure yellow; femora chiefly brownish black, the bases narrowly obscure yellow, passing into brownish black; a relatively narrow yellow ring at near three-fourths the length, this being about one-third as extensive as the blackened apex; tibiae obscure yellow, the tips broadly and conspicuously blackened; tarsi black. Wings (Fig. 10) subhyaline or with a slight yellowish gray tinge; prearcular and costal regions clearer yellow; stigma very pale, scarcely differentiated; veins brownish yellow, not very conspicuous against the ground. Venation:  $Sc_1$  ending opposite origin of  $R_s$ ,  $Sc_2$  near its tip;  $R_s$  long and arcuated, subequal in length to its sinuous anterior branch;  $r-m$  very long, the basal section of  $M_{1+2}$  greatly reduced;  $m-cu$  before fork of  $M$ .

Abdominal tergites black, the caudal borders of the segments paler, more silvery and conspicuous in female; pleural membrane silvery; hypopygium chiefly blackened; sternites with less evident pale caudal borders; genital segment of female yellow. Male hypopygium (Fig. 20) with both dististyles apical in position; outer style, *od*, elongate, blackend, bearing an acute spine just beyond the basal fourth; inner style, *id*, terminating in a short black spine, on inner face at base of spine with a small tubercle bearing the usual pair of fasciculate bristles; other normal setae grouped around base of spine. Phallosome, *p*, complex, composed primarily of two powerful yellow rods (one shown in figure) that are decussate across the midline, each terminating in a straight black spine, before which the apophysis bears numerous delicate setae on outer face.

*Hab.* Caroline Islands.

*Holotype*, ♂, Ponape: Kolonia-Nampir, January 2, 1938 (*Esaki*).

*Allotopotype*, ♀, with the type. *Paratopotypes* 1 ♂, 1 ♀, with the type.

I take unusual pleasure in dedicating this very distinct fly to the collector, Professor Teiso Esaki. The species is quite different from all of the now very numerous regional species of the subgenus. The pattern of the body and legs, and especially, the structure of the male hypopygium, serve to distinguish the species from other generally similar but not very closely allied forms.

*Gonomyia (Lipophleps) intrepida*, sp. n.

Figs. 11, 21.

General coloration of mesonotum reddish brown; pleura heavily striped with dark brown and yellowish; legs brownish black; wings strongly tinged with brown; stigma poorly defined, pale brown; cell 1st  $M_2$  small, its lower face less than one-half  $M_4$ ; *m-cu* before the fork of  $M$ ; male hypopygium with the outer lobe of basistyle about one-half as long as the single complex dististyle, the latter with two fasciculate setae that are separate, the outermost arising from a finger-like lobe.

*Male*.— Length about 3 mm.; wing 3.4 mm.

*Female*.— Length about 4 mm.; wing 3.5 mm.

Rostrum and palpi black. Antennae with basal segments pale, remainder of flagellum black. Head yellow, the center of vertex darkened.

Mesonotum reddish brown. Pleura striped with brown and yellow, including a dark brown dorsal stripe. Halteres with stem infuscated, knob more yellow. Legs with coxae brown; trochanters brownish yellow, remainder of legs brownish black. Wings (Fig. 11) with a strong brown tinge, the prearcular and costal fields more yellowish; stigma poorly defined, pale brown; cord vaguely seamed with dusky; veins brown. Venation:  $Sc_1$  ending just before origin of  $R_s$ ,  $Sc_2$  near its tip;  $R_s$  and its anterior branch subequal in length; cell 1st  $M_2$  small, its lower face less than one-half vein  $M_4$ ; *m-cu* before the fork of  $M$ .

Abdominal tergites dark brown, the lateral borders of tergites narrowly obscure yellow; sternites obscure yellow. Male hypopygium (Fig. 21) with the outer lobe of basistyle, *b*, produced, about one-half the total length of dististyle. Dististyle, *d*, single, large and complex, as figured; the usual fasciculate setae entirely separate, the outer one arising from a fingerlike lobe and more slender than the flattened inner

seta that arises from a low lobe. Phallosome, *p*, complex, at apex terminating in two slender paired spines, the apex with microscopic squarrose points.

*Hab.* Caroline Islands.

*Holotype*, ♂, Kusaie: Lelo, December 4, 1937 (*Esaki*).

*Allotopotype*, ♀. *Paratopotype*, 1 ♀.

*Gonomyia* (*Lipophleps*) *intrepida* is entirely distinct from all known species of the subgenus. I am not entirely certain that the allotype and paratype are conspecific with the type male since the latter is in very poor condition except for the male hypopygium. However, it appears that all three specimens are conspecific and are so treated.

*Gonomyia* (*Lipophleps*) *pietatis*, sp. n.

Figs. 12, 22.

General coloration of mesonotum brown, very sparsely pruinose; posterior border of scutellum and basal half of mediotergite more or less brightened; pleura brown, striped longitudinally with pale; femora yellow, with two brown subterminal rings, the outer one much wider; wings whitish subhyaline, clouded with pale gray and very sparsely patterned with dark brown; *m-cu* before fork of *M*; abdomen dark brown, the posterior borders of the segments yellow, especially conspicuous on the tergites; male hypopygium with three dististyles, the outer a strongly curved crook; intermediate dististyle with a conspicuous pale cushion at base; phallosome complex, terminating in lobes and points.

*Male*.— Length about 3—3.2 mm.; wing, 3.2—3.3 mm.

*Female*.— Length about 4 mm.; wing, 4 mm.

Rostrum and palpi black. Antennae black, the scape a little brightened above; pedicel more or less yellow. Head yellow, the vertex darkened medially.

Pretergites pale yellow. Mesonotum brown, very sparsely pruinose, the central portion of scutum and broad posterior border of scutellum yellow; mediotergite more or less brightened on basal half. The Ponape paratype has the praescutum more evidently striped but is apparently conspecific. Pleura brown, with a poorly defined longitudinal pale stripe, more evident in the paratype. Halteres yellow, the base of knob darkened. Legs with the coxae and trochanters yellow; femora yellow, with two dark brown rings on outer half, the

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distal ring much wider, approximately two to three times as broad, as the inner ring at near two-thirds the length of the segment; tibiae yellow, the tips narrowly but conspicuously blackened; tarsi passing into black. Wings (Fig. 12) whitish subhyaline, very restrictedly patterned with dark brown and clouded with pale gray; brown spots at arculus, tip of *Sc* and origin of *Rs*, cord, outer end of cell 1st *M*<sub>2</sub> and at end of anterior branch of *Rs*; most of disk faintly clouded with gray, leaving ground areas before and beyond stigma, along cord and at wing-tip; prearcular and costal fields more yellow; veins pale brown, darker in the clouded areas, more yellow in the costal portions. Venation: *Sc*<sub>1</sub> ending a short distance before origin of *Rs*, *Sc*<sub>2</sub> near its tip; *Rs* only gently arcuated, shorter than its anterior branch; cell 1st *M*<sub>2</sub> closed; *m-cu* from about one-third to more than; one-half its length before fork of *M*.

Abdomen dark brown, the posterior borders of the tergites ringed with clear yellow, of the sternites more obscurely yellow; male hypopygium more reddish brown. Male hypopygium (Fig. 22) with three dististyles, the outermost, *od*, a very strongly curved crook, the acute apex blackened and preceded by a group of short setae; intermediate style, *md*, longest, gently curved, at base bearing a large cushion that is densely set with pale setae; innermost style a very small cylindrical lobe bearing the usual two fasciculate setae, placed among others of normal size. Phallosome, *p*, complex, consisting primarily of a depressed-flattened yellow plate that terminates in various points and prongs, including two longer pale sinuous lobes, at their tips very pale and papillose; at base of phallosome a conical structure that is produced into a straight spine provided with appressed setae.

*Hab.* Caroline and Marianna Islands.

*Holotype*, ♂, Ponape, Caroline Islands: Kolonia-Nat, November 19, 1937 (*Esaki*). *Allotopotype*, ♀, with the type. *Paratopotype*, 1 ♀, with the type; 1 ♂, Kusaie, Caroline Islands: Malem, December 14, 1937 (*Esaki*). *Paratype*, 1 ♂, Guam, Marianna Islands: Piti, May 23, 1936 (*O. H. Swezey*), on grass; Bishop Museum, Honolulu.

*Gonomyia* (*Lipophleps*) *pietatis* is very different from all known species of the subgenus. The chief characters are found in the pattern of the legs and wings and in the structure of the male hypopygium.